

Process for Managing and Revising the Recovery Strategy

Any recovery strategy includes provisions for management and coordination of implementation, periodic review, and revision of specific strategy elements. Given the extensive range of coho salmon, the number and complexity of the recovery tasks, and the comprehensive nature of this Recovery Strategy, communication and coordination among participating groups, private entities, landowners, and agencies, is a basic requirement for success.

The recovery of coho salmon is long-term in nature, and as such, the Recovery Strategy must be flexible and responsive to changing conditions and new information. The Recovery Strategy is based on the best available, current information. However, comprehensive and predictive information is currently not available regarding many ecological processes, cumulative effects of human activities, effects of stochastic natural events, the most effective conservation management practices for several land-use activities, and the most effective and appropriate means of addressing stakeholder issues or conflicts. As the Department receives more information regarding these and other topics, the strategy will be improved, and consequently, coho salmon will benefit.

The Department has established an adaptive management approach (*sensu* Blann 2000) as part of this Recovery Strategy. The purpose of the adaptive management approach is to combine the scientific method, the best available science, and the experience of stakeholders and land managers in an iterative process involving:

- a. Implementing the recommended recovery tasks;
- b. Monitoring coho salmon and its habitat, and the social, economic, and political consequences;
- c. Reviewing monitoring and research information; and
- d. Determining what, if any, changes are necessary to achieve the Recovery Strategy goals and criteria.

Further information on the adaptive management process is provided in Section 12.4, below.

12.1 MANAGEMENT AND COORDINATION OF IMPLEMENTATION

It is readily apparent that the two-tiered approach (i.e., landscape-level and watershed-specific) to recovery of coho salmon populations across their range in California is complex. Successful implementation of even the highest priority tasks will require individuals, organizations, and agencies to work in concert and with a clear understanding of what must be done to complete the recommended tasks, and the time frame under which the tasks should be completed.

To establish and maintain the coordination necessary for coho salmon recovery, the Department will designate a range-wide coordinator and at least one regional coordinator for each of the Department's two northern coastal regions. The coordinators will work with the appropriate Department personnel, representatives from other agencies, watershed groups, landowners, and private and non-profit entities to:

- a. Support regional efforts to implement the strategy by providing a clear interpretation of the tasks, including a detailed schedule of required actions, who must complete the actions, when the actions need to be accomplished, and potential sources for funding;
- b. Work with data groups, such as the Department's Wildlife and Habitat Data Analysis Branch (WHDAB), to set up an accessible database of information and a planning and progress tracking system;
- c. Represent the Department in meetings with city, county, other State, and Federal agencies to coordinate activities recommended for coho salmon recovery;
- d. Ensure interaction between the Department and local watershed groups so that information generated by these groups may be used to update the Recovery Strategy;
- e. Assist in the establishment or broadening the scope of watershed planning groups in high priority watersheds that have been identified through the gap analysis (Appendix E) as areas where more information and project planning is needed;
- f. Work with the California Watershed Council (partnership between California Environmental Protection Agency and The Resources Agency) to ensure that the coho salmon recovery strategy is duly applied through the programs and priorities set by this council;
- g. Organize annual meetings of recovery teams and entities participating in recovery actions with updates on progress and consideration of new information;
- h. Conduct an annual review and update, if necessary, of the prioritization of recommended tasks; and
- i. Assemble annual progress reports.

In conjunction with developing a schedule of actions, the coho salmon recovery implementation coordinators will develop milestones for the strategy for the first five years, based on the interim priorities. As progress is made and new information analyzed, milestones will be developed for further five-year increments until coho recovery is achieved. Example milestones include:

- a. Work with NOAA Fisheries to re-evaluate and potentially revise recovery criteria and recovery units (Year 1);
- b. Coordinate with the Department's Fisheries Restoration Grant Program (FRGP) to integrate the strategy into the solicitation for 2004/05 grant cycle (Feb 2004 - Year 1);
- c. Convene an annual meeting of coastal funding entities (e.g., Coastal Conservancy, Regional Water Quality Control Boards, etc.) that fund recovery and restoration efforts to promote understanding of funding programs and priorities, identify funding gaps, discuss projects, and evaluate progress;
- d. Consider creation of regional watershed coordinators in order to better coordinate local and regional efforts in developing local watershed plans and priority actions, and coordinate the implementation of these plans by working closely with regional entities involved in recovery and restoration efforts;
- e. Work with the Department's Conservation Education Branch to develop a public outreach program for priority watersheds and essential recommendations, and for recommendations identified for enforcement (Year 1);

- f. Work with the Department's wardens to monitor and develop enforcement strategies in watersheds that support key coho salmon populations (Year 1-5);
- g. Work with the Department's basin planners or other designees to build planning/implementation capacity with watershed groups in high priority watersheds (Year 1);
- h. Meet with other agencies to coordinate implementation of recommended tasks under their authority and/or responsibility (Years 1-2);
- i. Meet with the SWRCB and the NCRWQCB to develop an MOA/MOU for coordination of tasks addressing water rights, flows, and quality;
- j. Coordinate with data management groups to update coho salmon monitoring and population data, and locations for collection of such data (Years 1 through 5);
- k. Determine which highest priority (Task Level "E" in implementation table) recommended tasks can be addressed with the funding available (all years);
- l. Determine which barrier removal projects in medium to high priority watersheds (ranks 3-5) that will re-establish access to formerly occupied habitat can be achieved with existing funding (Years 1-5); and
- m. Make significant progress toward achieving highest priority recommended tasks for which funding is available in priority watersheds (Years 1- 5).

12.2 TIMETABLE AND PROCESS FOR REPORTING AND REVISION

Pursuant to FGC §2113, the Department will convene the CRT and the SSRT and report to the Commission on an annual basis regarding the status and progress of implementation of the Recovery Strategy. The Department, with the input of the recovery teams, will review and update prioritization of recommended tasks, and address any new information or changed conditions by developing recommendations to the Commission for modification of the strategy. Recommendations for recovery plan element modification would be formulated using information from monitoring/research and feedback from participants indicating a change is necessary to remain on track toward meeting the goals and criteria of the Recovery Strategy. In reporting annually to the Commission regarding the status and progress of implementation of the Recovery Strategy, the Department will include recommendations for modification of the strategy. Annual coho salmon recovery reports that are sent to the Commission will be posted on the Department's web site.

The initial years of implementation will involve securing funds and working with local, State, and Federal entities to initiate high priority programs and tasks called for in the range-wide and watershed implementation schedules of the Recovery Strategy. The assessment and monitoring elements will also be in their formative state. Annual meetings will be important during these early years to assess progress on strategy elements and decide on any necessary adjustments to the strategy for purposes of clarity and aiding implementation.

Over time, trends should be visible in habitat monitoring and project-level effectiveness monitoring. Information on coho salmon distribution and abundance may also give indications of response to management decisions based on the Recovery Strategy. Larger adjustments to the strategy for the purpose of improving efficacy or making progress toward goals and objectives may be warranted at this time.

Information from these annual progress reports will become part of the Department's coho salmon status review pursuant to FGC § 2077, which requires the Department to review

listed species every five years to determine if conditions that led to the original listing are still present. Information regarding the population trend, range, distribution, abundance, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, and the impact of existing management efforts will be reviewed.

Department reports to the Commission may include a review of the identification of the habitat that may be essential to the continued existence of the species and the department's recommendations for management activities and other recommendations for recovery of the species. If CESA recovery goals and delisting criteria are considered to have been met, the Department coho salmon status review report may contain a recommendation to remove the species from the list of endangered species or the list of threatened species for the Commission's consideration.

12.3 TIMETABLE CLARIFYING NON-SPECIFIC LONG-TERM GOALS

As information regarding the time and cost for successful implementation of recovery goals and objectives becomes available, the Department will be able to provide more details on specific, long-term recovery goals. These long-term goals will be re-visited during the annual reviews. Long-term goals may be refined with new information on changed environmental conditions (e.g., significant floods or wildfires, fluctuation in ocean condition), better knowledge of effects of human activities on coho salmon populations and habitat, better understanding of the biology of coho salmon, progress or increased effectiveness in recovery actions, and/or other information.

12.4 ADAPTIVE MANAGEMENT¹

The Department believes adaptive management is essential for successful planning and implementation of coho salmon recovery.

Adaptive management is a systematic process for continually improving Department management policies and practices concerning coho salmon recovery by learning from the outcomes of recovery strategy programs and activities.

This management approach will allow for application of recovery actions regarding the various issues and scales, both identified and future; coordination and cooperation with other agencies, landowners, private industry, fishing organizations, and environmental organizations; testing alternative recovery and conservation land-use practices; ecosystem-based management for whole watersheds or portions of a watershed; evaluation of coho salmon population health and habitat condition; and incorporation of new information and better decision making based on research and monitoring of coho salmon recovery.

Essential to the progress of adaptive management will be input from local resource managers in government and industry, communities, and landowners who make decisions about land use and management, protecting and managing natural resources, and who will be responsible for implementing the majority of the recovery actions for coho salmon.

The Recovery Strategy adaptive management process is a six-step cycle (Figure 12-1), the success of which depends on the completion of all six steps:

¹ Adapted from Taylor et al. 1997.

1. *Assess Problem.* There are several processes to this step:
 - a. Identify the problems and issues facing coho salmon and habitat and evaluate the scientific, management, and economic options and feasibility of potential solutions;
 - b. Acknowledge where there are uncertainties in policy or practice and that what is “best” for a particular management issue may vary by region and over time; and
 - c. Assess the current condition of factors affecting coho salmon recovery and where assessment is still necessary.
2. *Design.* Thoughtful selection of the policies, programs, and activities to be applied to recovery and additional assessment.
3. *Implement.* Implementation of identified programs and activities for recovery of coho salmon and continuing assessment designed to reveal the critical knowledge that is currently lacking,
4. *Monitor.* Examination of the key response indicators that inform the Department on the progress and effectiveness of recovery programs and activities and status and trend of coho salmon and habitat.
5. *Evaluate.* Analysis of the outcomes of recovery activities and programs and assessment and monitoring information during evaluation of the progress of coho salmon recovery, reassessment of the original objectives, and consideration of revising the Recovery Strategy.
6. *Adjust.* Incorporation of the results of implementation and monitoring into future decisions and revisions of the Recovery Strategy.

FIGURE 12-1: Adaptive management cycle



